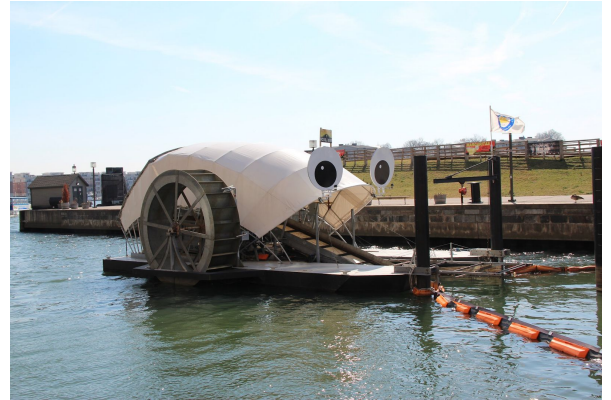


Project: Mr. Trash Wheel

Problem: How do we reduce the amount of trash that gets into our oceans?

Requirements:

1. Build a model of a trash interceptor that will remove waste from a waterway.
2. The model must be made of upcycled single-use plastics
3. The model must move a piece of trash (ping pong ball) from a water source to a separate container outside of the water.
4. The model must include splash resistant protections for the sensors and electronics used.
5. Create a 60 second PSA video to showcase your model and bring awareness of the effects of single-use plastics on local waterways and wildlife.
6. Bonus: Create a way to automatically activate your trash interceptor when trash is present and turn off when trash is not present.



Group Roles:

<u>Project Manager:</u>	<ul style="list-style-type: none">● Organize and motivate your team to stay on task● Controlling time management● Document all progress of your project by submitting daily reports and submitting a end-of-project portfolio showing progress of development.● Complete performance evaluations of your team
<u>Software Engineer:</u>	<ul style="list-style-type: none">● Designs a program to control motors and sensors to automate the project.● Troubleshoot and test programs in TI-Basic● Communicate with other team member to ensure all aspects work together● Submit a review of the Project Manager
<u>Mechanical Engineer:</u>	<ul style="list-style-type: none">● Design and build a project using single-use plastics● Troubleshoot and test materials to achieve the goal of the project● Communicate with other team member to ensure all aspects work together● Submit a review of the Project Manager
<u>Marketing/ Design:</u>	<ul style="list-style-type: none">● Develop a creative aesthetic to your project to make it marketable● Create a 60 video PSA on the effect of single-use plastics on the environment using your project● Communicate with other team member to ensure all aspects work together● Submit a review of the Project Manager

Links:

[Waterfront Partnership of Baltimore - Mr. Trash Wheel Project](#)

[VOA Connect Video: Keepin'it Wheel](#)

Rubric:

Category - Group	Score (40 points)
Project Development Portfolio, must include: (10 points) <ul style="list-style-type: none">● Examples of Brainstorming (1)● Concept Sketches (4)● Choice Analysis (1)● Reflection on Project Development from each Team Member (4)	
Trash Wheel Product: (20 points) <ul style="list-style-type: none">● The project meets all requirements● The project completes a successful test by the end of class by June 7th	
60 Second PSA: (10 points) <ul style="list-style-type: none">● The PSA is creative and attention grabbing● It features the trash wheel and effects of single-use plastics on waterways within the 60 second limit.	
Category - Individual	Score (15 pts each)
<u>Project Manager:</u> <ul style="list-style-type: none">● Turns in completed Daily Reports at the end of each class (5)● Coordinates and assists team members (3)● Completes Performance Evaluations of each Team Member by 6/7 (3)● Average Score from Performance Evaluation from Team (4)	
<u>Software Engineer:</u> <ul style="list-style-type: none">● Completes Software Design Report by June 4th (5)● Develops, Tests and runs a successful program to power the trash wheel (6)● Performance Evaluation (4)	
<u>Mechanical Engineer:</u> <ul style="list-style-type: none">● Completes Model Design Report by June 7th (5)● Develops, Tests and Runs a successful device that meets the requirements (6)● Performance Evaluation (4)	
<u>Marketing Designer:</u> <ul style="list-style-type: none">● Completes PSA Development Report by June 7th (5)● Create and record a creative PSA on the effects of single use plastics (6)● Performance Evaluation (4)	